REMARKS

This application has been carefully reviewed in view of the above-referenced Office Action, and reconsideration is requested in view of the following remarks.

Regarding the Rejections under 35 U.S.C. §103

Claims 1-5, 9-14, and 19-29 are rejected as being unpatenable over Inuzuka in view of Ben-Bassat et al. Claims 6-8 and 15-17 are rejected as being unpatenable over Inuzuka in view of Ben-Bassat et al. and in further view of "Hartman et al." Applicant assumes that the 103 rejection of claims 6-8 and 15-17 is based upon the Kawata patent cited by the examiner and listed on PTO Form 892, U.S. 6,340,649, and not upon a patent to Hartman, for which a patent number has not been provided.

Applicant respectfully traverses these rejections as follows:

Initially, Applicant notes with appreciation that Applicant's arguments with respect to the 35 USC 102 rejection of the claims over the Inuzuka reference were persuasive as that ground of rejection was withdrawn.

The new bases of rejection are based upon a combination of references that fail to obviate at least two of the elements of the independent claims. First, the following recitation of the claims directed "a frequency generator that generates a local oscillator signal without use of a piezoelectric crystal;" "an oscillator that generates the RF transmitter carrier signal without use of a piezoelectric element", or "generating a local oscillator signal without use of a piezoelectric crystal", or the like, is not taught, disclosed or suggested by the references, whether considered singly or in combination.

As noted in the previous response, generating a local oscillator signal without use of a crystal provides advantages in situations where very low device size and cost are paramount. The

examiner is again respectfully directed to page 4, lines 3-10; page 6, line 20 to page 7, line 20; page 9, lines 7-12, 20-30; page 20, lines 7 on; as well as other portions of the specification, in which the use of and advantages associated with a frequency reference without the use of crystal materials is discussed.

The Inuzuka and Ben-Bassat et al. references, even when considered in combination, fail to teach at least the non-piezoelectric crystal recitation of the claims, and indeed the Ben-Bassat reference, upon which the rejection relies to teach a frequency generator without use of a piezoelectric crystal, actually teaches away from this aspect of the claims. While the Ben-Bassat reference at column 10, lines 8-10, discusses "any suitable device such as a quartz crystal, ceramic resonator, SAW resonator, etc." it is important to note that all of these devices are piezoelectric in nature. A reading of Ben-Bassat makes it clear that this reference does not contemplate the use of non-piezoelectric devices and indeed the reference teaches away from non-piezoelectric resonators. Ben-Bassat presents his frequency source in the context of a particular system that is tolerant to the characteristics of his SAW frequency sources. Consider, for instance, his teaching that a bandwidth of no more than 10 MHz is desirable for a resonator used in his exemplary system, at column 10, line 32. For the frequencies discussed by Ben-Bassat, this translates to relatively high values for Q of 90 for the case of a 900 MHz carrier and 240 for the case of a 2.4 GHz carrier. These values are high, with a Q of 240 for the case of the 2.4 GHz carrier being clearly beyond the range of what could reasonably be achieved with even discrete lumped-element LC resonators. For the case of RC resonators, Q has no real meaning. It is clear that the Ben-Bassat was not contemplating lumped-element oscillators or other non-piezoelectric crystal technology. Of course, the examiner has acknowledged that Inuzuka teaches only crystal elements as a reference for his frequency sources.

Moreover, with regard to the SAW resonator taught by Ben-Bassat, the examiner is respectfully directed to the web note by Com-Dev Products at URL http://www.saw-device.com/pdfs/what_is_a_saw_filter.pdf , a copy of which is attached to this response for the examiner's review. For the case of ceramic filters, the examiner is respectfully directed to the

technical note from Integrity Technology Corporation at URL http://www.integritytechnology.net/Resonators/Resonator-Technote-1.pdf, a copy of which is also included hereto. Thus, the Ben-Bassat mention of SAW resonators and ceramic filters does not suggest or teach "a frequency generator that generates a local oscillator signal without use of a piezoelectric crystal" as recited in claim 1 and similarly in the other independent claims.

Applicant notes for the record that these differences between the claimed invention of claim 1 and the cited references were discussed briefly with Examiner File in a telephonic interview on July 31, 2006.

Second, in addition to the above, there is another aspect of the invention that is quite different from the combination of cited references. The specification teaches that differentially detecting the signal prior to correlation, i.e. symbol matched filtering, is important in the mitigation of certain undesirable effects associated with the use of a non-piezoelectric crystal for generation of a local oscillator signal, such as frequency offsets and phase noise. The examiner is respectfully directed to the following passages of the specification: page 5, lines 6-10, 15-26; page 7, lines 5-7, 10-15; page 13, line 19 to page 18 (in which a detailed treatment of frequency offset and phase noise mitigation is to be found); page 18, lines 8-11; page 20, lines 7-13, for example.

This aspect of the invention provides compensation for some of the more undesirable effects that might be encountered with the use of non-piezoelectric technology, which is inherently less stable than piezoelectric-based technology. In so doing, the invention provides a meaningful way to provide for the use of lower cost, noisier frequency references.

The claims as filed recited conversion prior to correlation (claims 1, 19 and 29, for example) and thus this is not considered new matter. In the interest of more definitely reciting this aspect of the invention, however, applicant has amended independent claims 2, 19 and 29 to more clearly include this feature that is not taught by the references of record.

Applicant has moreover made certain other amendments to the claims to pursue patent protection to which the Applicant is entitled and not related to the references cited against the claims. Claims 1 and 29 have been amended to make reference to "a second set of DSSS codes"; this recitation was originally in claim 19 as filed. The recitation of the second set of DSSS codes being a differentially detected set of DSSS codes has been placed in new, dependent claims 30 and 31 which depend from claims 1 and 29, respectively. The specification clearly teaches that the second set of DSSS codes may be differentially detected or simply shifted in time; the examiner is respectfully directed to page 6, lines 21-29, of the specification, for example. Additionally claim 15 has been amended to depend from claim 1 and to place the recitation originally found in claim 18 as filed into new, dependent claim 32. It is important to note that this claim language was only placed into claim 15 in response to the office action of June 29, 2005 indicating claim 18 as allowable. In light of the new grounds of rejection, keeping this recitation in claim 15, which now depends from claim 1, is considered to be too significant a narrowing of the claim.

With regard to claims 5 and 16, Applicant notes that the examiner's assertion that the Ben-Bassat reference teaches an RC oscillator is incorrect. In Figure 5 of the reference, element 56 is clearly identified as a SAW resonator (column 11, line 59). The figures can be recognized as a variation on a SAW-controlled Colpitts oscillator. The frequency of the circuit is substantially set by the characteristics of piezoelectric element 56. Fine frequency tuning can be achieved through adjustment of variable capacitor 70, with transistor 64 and fixed capacitor 68 completing the oscillator. All remaining elements in the figures are present to provide circuit bias and signal buffering.

Concluding Remarks

The undersigned notes that other distinctions exist between the cited art and the claims. However, in view of the clear distinctions pointed out above, further discussion is believed to be unnecessary at this time. Failure to address each point raised in the Office Action should accordingly not be viewed as accession to the Examiner's position or an admission of any sort.

No amendment made herein was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any claim unless an argument has been made herein that such amendment has been made to distinguish over a particular reference or combination of references.

In view of this communication, all claims are now believed to be in condition for allowance and such is respectfully requested at an early date. If further matters remain to be resolved, the undersigned respectfully requests the courtesy of an interview. The undersigned can be reached at the telephone number below.

Respectfully submitted,

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